WHAT IS CLAIMED IS:

1. A n engine cogeneration system in which a power generator is driven a plurality of engines to supply electric power, and at the same time, exhaust heat from said plurality of engines is recovered to supply the heat to a heat load, wherein at least one of a number of engine to be driven and a combustion mode of said engine is controlled to meet heat load and power load to be demanded.

2. The engine cogeneration system according to claim 1, wherein said combustion mode makes a difference in heat recovered from the engine due to the alternation thereof to a power amount outputted from said power generator as heat/power ratio.

3. The engine cogeneration system according to claim 1, wherein combustion mode is any of a spark ignition combustion mode, an ignition time retard combustion mode, and a premixing compression ignition combustion mode.

4. The engine cogeneration system according to claim 3, wherein in the case where said combustion mode of any of said plurality of the engines includes at least said premixing compression ignition combustion mode, when the engine is switched to said premixing compression ignition combustion mode, the switching is made under the condition that the combustion mode before switching must be said spark ignition combustion mode.

5. The engine cogeneration system according to claim 3, wherein at least one control of a number of engines to be driven and a combustion mode of said engine is executed with the consideration that said engine including the premixing compression ignition combustion mode is difficult to be driven at said premixing compression ignition combustion mode.

6. The engine cogeneration system according to claim 1, which is connected to a commercial power source so that when an amount of power supplied from said power generator to said power load is lacking, power is supplied from said commercial power source.

7. The engine cogeneration system according to claim 1, which comprises a storage for storing an excess power, so that when an amount of power supplied from said power generator to said power load is excess, the excess power can be stored.

8. The engine cogeneration system according to claim 1, which is configured so that when an amount of power supplied from said power generator to said power load is excess, the excess amount of the power is converted into heat which is supplied to said heat load, and which is stored.

9. The engine cogeneration system according to claim 1, wherein said combustion mode makes a difference in heat recovered from the engine due to the alternation thereof to a power amount outputted from said power generator as heat/power ratio.

10. The engine cogeneration system according to claim

1, wherein combustion mode is any of a spark ignition combustion mode, an ignition time retard combustion mode, and a premixing compression ignition combustion mode.

11. The engine cogeneration system according to claim 3, wherein in the case where said combustion mode of any of said plurality of the engines includes at least said premixing compression ignition combustion mode, when the engine is switched to said premixing compression ignition combustion mode, the switching is made under the condition that the combustion mode before switching must be said spark ignition combustion mode.

12. The engine cogeneration system according to claim 3, wherein at least one control of a number of engines to be driven and a combustion mode of said engine is executed with the consideration that said engine including the premixing compression ignition combustion mode is difficult to be driven at said premixing compression ignition combustion mode.

13. The engine cogeneration system according to claim 1, which is connected to a commercial power source so that when an amount of power supplied from said power generator to said power load is lacking, power is supplied from said commercial power source.

14. The engine cogeneration system according to claim 1, which comprises a storage for storing an excess power, so that when an amount of power supplied from said power generator

to said power load is excess, the excess power can be stored.

15. The engine cogeneration system according to claim 1, which is configured so that when an amount of power supplied from said power generator to said power load is excess, the excess amount of the power is converted into heat which is supplied to said heat load, and which is stored.